

# Final Report: Exotic Plant Management Team 2004 Kenai Fjords National Park

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## ABSTRACT

The purpose of this project was to document, map and reduce populations of invasive plant species in Kenai Fjords National Park (KEFJ) using Alaska Exotic Plant Management Team protocol. Exotic plants were surveyed and mapped using a Trimble GeoXT Geospatial Positioning System (GPS) unit and entered into a nationwide database. All exotic plant species surveyed had previously been identified in the park in 2001 (Densmore 2001), but plant numbers appear to have increased. Monitoring and control efforts should continue at KEFJ to prevent further spread and introduction of new exotic plant species and to keep native ecosystems intact.

## INTRODUCTION

A preliminary exotic plant survey began during the 2000 field season. Nine species of exotic plants were documented growing within Kenai Fjords National Park in the Exit Glacier area. It was noted that *Matricaria discoidea* (pineapple weed), *Taraxacum officinale* (common dandelion) and *Trifolium repens* (white clover) were found around the ranger station and parking lot, and that *T. officinale* was scattered along the trails although not found on glacial moraines or the outwash plain. Common dandelions were the only abundant exotic plant along Exit Glacier road inside the park. Also noted was *Linaria vulgaris* (butter and eggs) growing along Exit Glacier Road inside the park (Densmore 2001). Eight additional species of exotic plants were also found growing along the Exit Glacier road outside the park boundary on land administered by the United States Forest Service and the State of Alaska. These included *Medicago sativa* (alfalfa), *Melilotus officinalis* (yellow sweetclover) *Trifolium pratense* (red clover), *Leucanthemum vulgare* (oxeye daisy) and *Crepis tectorum* (narrow-leaf hawksbeard). These plants were apparently introduced in a reseeding mix after that section of road was paved in 1999 (Bryden 2002). Exotic plants are likely to spread along the road especially if disturbed areas are created by construction projects (Densmore 2001).

Two other exotic plants growing in Seward are *Vicia cracca* (tufted vetch/bird vetch) and *Tripleurospermum perforata* (scentless false mayweed) and are established around the Alaska Sealife Center. These species were apparently introduced with topsoil from Anchorage for landscaping. These species have

spread rapidly around Anchorage and have the potential to do the same in Seward (Densmore 2001).

In the summer of 2002 opportunistic searches for exotics were conducted while performing other field work. *T. officinale* was found to have spread beyond the road and trail corridor at Exit Glacier in several locations. Previous to 2002 it was thought to occur only along the road and trail corridors. Plants were found in areas of sparse vegetation both north and south of Exit Glacier Road, several kilometers from the road corridor. An area of sparse vegetation located approximately 1500 m north of Exit Glacier Road has an established population of *T. officinale*. Over 340 plants were counted in flower on June 20, 2002 in this location. (Bryden 2002)

As exotic plants in KEFJ have increased, so has the need to document and manage them. In 2002, NPS began organizing skilled strike forces of plant management specialists, modeled after similar teams used to fight wildfires. Each Exotic Plant Management Team is capable of assisting multiple parks in its geographic area with inventory, control, and monitoring as well as public education. In the summer of 2004, KEFJ worked in cooperation with the NPS Alaska Exotic Plant Management Team (AKEPMT) and began a program to monitor and stop the spread of exotic plant species in KEFJ. Exotic plants found in the park were surveyed, mapped and removed by hand. A community "weed pull" was conducted on June 19 in cooperation with the Chugach National Forest which shares a boundary with the park along Exit Glacier Road. Most of the exotic plant work was done in the Exit Glacier area, but surveys were also conducted in various locations in the coastal areas of the park during other scheduled duties.

## METHODS

During May-August, 2004 a biotech was employed to apply protocol developed by the AKEPMT. The protocol is used on a nationwide level to monitor, map and remove exotic plant species both in the park and outside the park boundaries. Exotic plants monitored outside the park were a direct threat due to their close proximity to the park boundary. Plant removal was accomplished by loosening roots with a weed pulling tool and then pulling the root out of the soil. Exotic plants were pulled and then put into garbage bags and hauled to the dump. Exotic plant species that were documented in past years and species that could possibly be in the park were identified. Exotic plant identification information was distributed to other park employees working in the Exit Glacier area to assist in the identification and reporting of any sightings. Exotic plants were located by searching human impacted areas in the Exit Glacier area. Trails, including the Main Trail, the Nature Trail, the Upper Loop Trail and the Harding Icefield Trail were assessed for exotic plants as well as parking lots, roadways, housing and public building areas. Exotic species were mapped using a Trimble GeoXT GPS

and entered into an access database created by AKEPMT. As many exotic plants were pulled and hauled away as time permitted. Plants located farthest away from human impacted areas were the highest priority for removal. Some sites identified in the 2002 survey were revisited using maps and aerial photos and the plants were mapped and removed. A number of exotic plant species are just outside the park boundary on Chugach National Forest land and could easily move into the park. KEFJ worked in cooperation with the Forest Service and the public to organize a community weed pull targeting one of the more invasive exotic plants, *Melilodes officinalis* (yellow sweet clover). Plants were either dug up or the herbaceous top portions were removed. The area treated included the roadside from the Resurrection River Trailhead to the Exit Glacier overlook pullout on Chugach National Forest land.

A volunteer group pulled the flowers off dandelions in the Exit Glacier area in mid June. Monitoring had not begun, so it was not desired to have plants pulled up, but to prevent the plants from going to seed. In some cases *T. officinale* plants were inadvertently pulled as well as the native *Taraxacum ceretophorum* (native dandelion). It was helpful to have flowers removed since the monitoring project was implemented relatively late in the season and many dandelions would be dispersing seed before they could be pulled. Monitoring in the coastal regions of the park was done opportunistically when other projects were being conducted in those areas. No special trips were made to the coast to monitor exotic plants due to remoteness of the location and transportation expense.

## RESULTS

The same species noted in the 2001 and 2002 field seasons were again found within the park boundary. *Taraxacum officinale*, *Trifolium repens*, *Plantago major* were found along the roadway, in the parking lot area, scattered on the trails and around public buildings. *Leucanthemum vulgare* previously noted to be outside the park along Exit Glacier Road was found in two locations in the park. One plant was located along the roadside and the other was along the edge of the car parking lot. Both were pulled before seed was dispersed. *Linaria vulgaris* was also noted to be growing along the roadside inside the park 2001. Only a few plants were established at that time. This year's monitoring concluded that *Linaria vulgaris* has spread, but seems to be contained to one area approximately 145 meters along the roadside. Although plants were pulled, it spreads by rhizomes as well as seeds and is difficult to completely remove. It was also difficult to see this plant when it was not blooming as it blended with *Equisetum arvense* (horsetail) and young *Epilobium latifolium* (dwarf fireweed). It is a late season bloomer, so plants overlooked in June were seen in August and early September and pulled. *T. officinale* and *Trifolium repens* were very abundant along Exit Glacier Road inside the park. These were only monitored in that location and not treated, due to lack of personnel available for pulling the plants. The sites off the road and trail corridors found in 2002 were revisited, and

the *T. officinale* had increased dramatically. Over 340 plants were counted in 2002 (Bryden 2002) and this year 12,635 plants were pulled, counted and mapped. The area is relatively open and wind or animals may have assisted in establishing the seed initially since it is not an area that humans regularly visit. This infestation is a significant concern since it is removed from human impact areas and the population of *T. officinale* has increased dramatically from recent years. Other remote sites that were south of Exit Creek could not be reached due to high water in the creek. *T. officinale* and *Plantago major* were found on the more primitive Harding Icefield Trail. A large infestation of *T. officinale* is of concern on the lower part of the trail. All these plants were pulled and the location mapped.

The community weed pull was made up of Park Service and Forest Service employees and one person from the community. It is difficult to get community support during the summer as many people are busy working since the Seward economy is based primarily on summer tourism and commercial fishing. Most of the exotic plant work was done in the Exit Glacier area, but monitoring was also conducted in parts of the coastal area of the park with no evidence of exotic plant species including: North Arm Public Use Cabin, Kenny Mine site in Palisades Lagoon and Delight Cabin area (which is an NPS easement site on Port Graham Corporation land) in Nuka Bay.

## DISCUSSION

In Kenai Fjords National Park, most of the exotic plants were found confined to areas that had been recently or repeatedly disturbed by humans. There were, however, exceptions. Some of the points were relocated in 2004 and the areas were surveyed, mapped and pulled. *T. officinale* populations had increased in these areas compared to the numbers noted in 2002 (Bryden 2002). All these points in areas undisturbed by humans should be visited next summer (Figure2). It is a priority to remove exotic plants that are outside disturbed human use areas.

The *T. officinale* infestation on the lower Harding Icefield Trail is also a concern. This is a location that needs to be watched and dandelions pulled each year so they do not spread up into the alpine vegetation. Native *Taraxacum ceratophorum* (native dandelion) was also found near this location. This species can easily be confused with the exotic species when not in bloom. Care needs to be taken not to pull this plant.

Exotic plant surveys should be increased next year. Because of lack of personnel and other work project conflicts, there was not enough time to survey, map and pull as many species as were desired. Surveying in 2004 provided a baseline, which can be used to build off in 2005.

The establishment of an IPM plan for exotic plant monitoring and control for KEFJ should also be a priority. A draft has been written and is in its final stages of editing. The community weed pull in conjunction with the Forest Service seemed to have slowed the growth and flower of *Melilotus officinalis*, but did not appear to have substantially reduced the population as of September. Next years survey is expected to provide more accurate results. Because of late AKEPMT training dates, exotic plant surveys were not started until mid-June. *T.officinale* was already blooming and starting to go to seed by the time many areas were mapped and removal began. Pulling plants causes soil disturbance and this may actually increase the ability of seeds to germinate. Starting monitoring at the beginning of June would allow exotic plants to be pulled earlier and decrease their ability to reseed themselves.

Exit Glacier is the most accessible part of the park because it is reachable by road and most easily surveyed, but the coastal region of the park is also accessed by kayakers and Public Use Cabin users. Exotic plants could be brought in on shoes, boats and camping gear. Because of remote location and travel expense more areas on the coast were not surveyed in 2004. All of the Public Use Cabins and Ranger Station should be surveyed as well as many high use kayaker beaches as possible next year.

More volunteer groups could be helpful in removing more exotic plants in the future. Only one and sometimes two people were available to pull exotic plants during the 2004 summer. Volunteer groups are a great way to work on getting rid of some of the larger areas of infestation in the park. When volunteers come to pull exotic plants, the AKEPMT representative should be on site to educate them on pulling methods and what species of plants are being targeted to make best use of their efforts.

Exotic plants are still at a controllable level at KEFJ. The species documented in 2000-2001 are some of the same exotic plants that were documented in 2004. No exotic plant species on Chugach National Forest lands have crossed over into KEFJ, but there is a good possibility that it will happen in the near future. Continued work in cooperation with AKEPMT is the best way to continue exotic plant monitoring and control. The information gathered at KEFJ will be used in a national exotic plant control effort. KEFJ needs to be committed to eradicating exotic plants now to keep natural ecosystems in tacked.

## **REFERENCES**

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